An Unusually Good Book

Hunger Signs in Crops. A symposium written by a group of fifteen specialists in agronomy, horticulture, plant nutrition, and plant diseases. Published by the American Society of Agronomy and the National Fertilizer Association. Judd and Detweiler, Inc., Washington, D. C. 1941. Pp. 340. $2.50

Hunger Signs in Crops gives in a very practical manner the symptoms that develop in growing crops when they lack needed mineral elements. The book is timely, for nutritional experts inform us that our diets are woefully lacking in vitamins, proteins and minerals. When plants lack minerals they cannot grow normally, and man and animals that feed upon these plants do not obtain the essential food elements.

The seventy-nine color plates in the book are well chosen and illustrate clearly the many points emphasized throughout the volume. As an example, the picture of a grapefruit with aborted seed and gum pockets in its axis clearly shows boron deficiency. The normal fruit in section is shown for comparison. In addition to the colored plates there are ninety-five halftones that vividly show the results of mineral deficiencies in the plants. The plants discussed are the ones we deal with in our daily life. The pictures illustrate the poor vegetables and fruits that we often purchase unwittingly from the store.

The opening chapter deals with general considerations but follows with a discussion of tobacco, corn and small grains, potato, cotton, vegetables or truck crops, deciduous fruit, legumes and citrus fruits.

The book was designed to be non-technical so as to increase its usefulness. The material was planned for county agents, agricultural teachers, progressive farmers and a source book for libraries and scientists. The clear pictures show at a glance what is wrong with a plant. Thirty minutes spent in the projection of the splendid plates will teach a student more about mineral deficiencies than ten hours of didactic work. Botanists and all lovers of nature cannot afford to ignore this book if they wish to be classified among the well informed.

As one turns the pages of the book one is confronted with the need of the following fertilizers in the soil: nitrogen, potassium, phosphorus, sulfur, magnesium, calcium, iron, manganese, boron, zinc and copper. When these elements are lacking, we have the ready

picture which shows the deficiency and the loss of yields that one may expect. As a defense measure crops must be of high quality, and proper plant nutrition is absolutely necessary if we are to produce in abundance.

Sales of this book have been unusually high which testifies to its real worth. Credit, however, must be given to its sponsors who contributed freely of their time and to the Soil Improvement Committee of the National Fertilizer Association who agreed to be responsible for the sale of enough copies so that the price of the book would be within reach of all.

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FIELD TRIPS OF THE CLUB

Trip of September 28, 1941, to Lake Bear Swamp (Lake Owassa) and Springdale, N. J.

This was a joint outing with the American Fern Society. Our first find was made before reaching the swamp. Among the revegetating species in a long abandoned field at the edge of the swamp we found the two gentians typical of north Jersey, *Gentiana quinquefolia* and *G. Andrewsii*. Two species of Botrychium were taken here also. In rapid succession as we entered the swamp the Massachusetts fern, and the two chain ferns were encountered. All of the species commonly to be expected in this habitat were found. Our trip had been prompted by the leader's interest in a press report that "mining" operations were in progress in the vicinity. It seems that a so-called "peat" is obtained from the root masses (tussocks) of Osmunda. No evidence of such activity was encountered though Osmunda was plentiful. This is a large swamp and we did not cover it all, though the difficulty of crossing a sector of Rhododendron thicket convinced most of the party that they had travelled miles. The reward here was a good feed of wild grapes in their prime. Before leaving the parking place many of the group were successful in finding Isoetes along the shore of Lake Owassa.

After lunch we returned to Newton and the leader obtained permission from Mr. Whittingham to cross his pasture to the well-known Springdale swamp region. Many previous visits to this area have been made. Clinton's and Goldie's ferns are abundant in parts